

## TITLE OF THE INVENTION

### HEAVY-DUTY MAT PANEL CONNECTOR AND SYSTEM FOR CONNECTING MAT PANELS

#### FIELD OF THE INVENTION

5           The present invention relates to protective heavy-duty mats and the like and more particularly to the field of connecting individual, adjacent mat panels in a secure yet flexible manner, so as to extend the surface area that the mat panels cover without having the mat panels slide apart, over, under, or out of line with one another.

#### 10 BACKGROUND OF THE INVENTION

          Heavy-duty mats are used indoors and outdoors to protect flooring, lawns, landscaped areas, driveways, roads, etc. Additionally, they protect the people and vehicles that traverse those areas.

          Heavy-duty indoor mats typically are used in commercial or industrial  
15 settings to prevent people from walking on wet surfaces. Those commercial and industrial mats provide a non-skid, cushioned surface to traverse. Often, this type of mat has apertures throughout it. The apertures allow water that falls onto the mat to drain through the apertures and beneath the walking surface.

20           Heavy-duty outdoor mats can minimize or eliminate damage to lawns and landscaped areas and provide traction for vehicles operating in mud or

sand. Those mats are often made out of durable materials with or without apertures. If sold without apertures, such apertures can be added later.

Another type of outdoor mat, often used in construction areas, comprises a heavy duty, one-half inch thick polyethylene. Construction mats may include  
5 a slip-resistant, diamond plate cleat design (or other design) on one or both sides. Such mats are used in various applications, including but not limited to, golf courses, landscaped areas, and construction areas. In the latter application, the mats protect against damage caused by the movement of heavy, construction-type equipment and also provide a flat, stable surface for  
10 vehicle traffic.

In use, construction pathways and areas are often covered by mat panels that are laid or placed adjacent to one another, with their edges abutting, to form drive paths or other larger covered surface areas. Problems arise, however, where numerous mats are placed adjacent to one another without  
15 some flexible securing mechanism between the mat panels. First, the mats can slip apart, leaving spaces between the mats where an individual can trip or vehicles can lose traction or get caught. Damage to the ground may also occur. Second, the edges of the mats may slip over one another, creating a lip that can cause someone to trip or cause equipment to get caught. Finally, having to  
20 readjust mats to keep them continuous and flat can be time consuming and an inefficient and costly use of work time.

Currently, no connectors exist to connects mats and mat panels in the manner described by the current invention. Instead, mats and mat panels are secured in adjacent positions by using stakes to fix individual mats or mat panels in particular locations. Staking does not fully secure the mats and panels, however, and they move during use, especially when used as roadways for heavy machinery and equipment. In particular, when staked, the panels tend to move and separate during use.

Accordingly, the primary objective of the present invention is to provide a flexible yet secure connector for various types of heavy-duty mats, as well as a related system for flexibly joining mat panels. Another objective is to provide a flexible type of connection that can be easily secured or removed from the heavy-duty mat panels. The present invention has particular applicability to heavy-duty, rectangular mat panels for vehicle driveways or drive paths for heavy equipment, specifically in construction-type areas.

Other objects, features, and advantages of the present invention shall be apparent from the figures and description of the invention that follow.

#### BRIEF SUMMARY OF THE INVENTION

The present invention discloses a two-pronged connector for flexibly joining two adjacent mat panels through interaction with a single hole in each mat panel. The connector has an upper member with a first end and a second end, which are opposite one another. The upper member spans the distance

between the holes in said adjacent mat panels. The connector also has a first lower member having opposing inner and outer ends and a second lower member having opposing inner and outer ends. A first joining member connects the first end of the upper member to the inner end of the first lower member. A second joining member connects the second end of the upper member to the inner end of the second lower member. The lower member and the joining members are sized to fit within the holes in the adjacent mat panels. In the preferred embodiment, the upper member is substantially parallel to the lower members (in parallel horizontal planes).

In use, the upper member of the connector rests on the top surface of two adjoining mat panels and spans the distance from the hole in one mat panel to the hole in an adjacent mat panel. The upper member's ends terminate in joining members, which extend downward through the joining members' respective holes or apertures in each panel (substantially forming an inverted "U") so as to flexibly secure the panels to each other. The joining members terminate in lower members, which extend outward underneath and against the bottom surface of each panel to prevent the connector from lifting away from the panels. The joining members and lower members are sized to fit within the holes in the mat panels.

Another embodiment of the present invention discloses a four-pronged connector for flexibly connecting two to four adjacent mat panels with each panel having at least one hole near the edge abutting an adjacent panel. In

general, the four-pronged connector comprises two two-pronged connectors that are joined substantially in parallel to one another. As such, they form a four-pronged connector. At least one spanning member connects the upper members of each two-prong connector so that the upper members and the lower members are in substantially the same plane as one another. In operation, each of the joining members of each two-pronged connector extends downward through a hole or aperture in one of the two to four adjacent mat panels so as to secure the mat panels together. The upper and lower members act to flexibly secure the connector in place against the mat panels. The joining members and lower members are sized to fit within the holes in the mat panels.

Connectors can be formed having more than four prongs by joining, in parallel series, any number of two-prong connectors. All of the above and below described details and properties of two- and four-prong connectors apply to connectors with more than four prongs.

The process of manufacturing a mat connector comprises cutting a first piece of raw material to a desired length, and then forming that first piece of material to have a substantially straight upper member having two opposing ends. Each end bends into a joining member. Each joining member extends into a lower member. Alternatively, each member can be separately formed and then joined together, such as by welding, gluing, adhesive, taping, nailing,

screwing, hinges, or any other method obvious to one skilled in the art to form the connector.

Finally, one embodiment of the present invention further comprises a system of flexibly securing adjacent mat panels. In particular, the present invention discloses a system of securing heavy-duty mat panels, whereby holes or apertures are drilled or created in panels that a user wishes to flexibly connect and a connector of the present invention is inserted into such holes or apertures. This system can be used to secure panels in series to create a drive path or walkway. This system can also be used to create a floor-like surface and, more specifically, to join generally rectangular mat panels. In this latter application, the connector of the present invention acts to secure at least two to four adjacent panels at their adjacent sides.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For the present invention to be easily understood and readily practiced, the invention will now be described, for the purposes of illustration and not limitation, in conjunction with the following figures, wherein:

FIG. 1 illustrates a side view of one embodiment of a two-prong connector according to the present invention;

FIG. 2 illustrates an end view of the connector of FIG. 1;

FIG. 3 illustrates a top view of the connector of FIG. 1 and FIG. 2;

FIG. 4 shows a top view of one embodiment of a two-prong connector of the present invention securing two mat panels (two two-prong connectors are shown);

FIG. 5 is a top view of one embodiment of a four-prong connector  
5 according to the present invention;

FIG. 6 illustrates an end view of the connector of FIG. 5;

FIG. 7 is a perspective view of the connector of FIG. 5 and FIG. 6;

FIG. 8 is a perspective view of one embodiment of each of the two- and four-prong connectors connecting four adjacent mat panels;

10 FIG. 9A illustrates two two-prong connectors of one embodiment of the present invention connecting two adjacent mat panels;

FIG 9B illustrates one four-prong connector of one embodiment of the present invention connecting two mat panels;

FIG. 9C illustrates one two-prong connector and two four-prong  
15 connectors of one embodiment of the present invention connecting six adjacent mat panels;

FIG. 9D illustrates one two-prong and one four-prong connector of one embodiment of the present invention connecting three adjacent mat panels;

FIG. 10 shows one type of heavy-duty mat panel having holes near the  
20 corners and edges;

FIG. 11A shows two mat panels connected by a two-prong connector of one embodiment of the present invention being used as part of a drive path;

FIG. 11B shows a top view of a dual drive path comprised of two series of three mat panels, which mat panels are connected by two-prong and four-prong connectors;

FIG. 11C shows two adjacent series of connected mat panels forming a continuous pathway; and

FIG. 12 shows two adjacent series of connected mat panels forming a dual drive path and abutting a third series of connected mat panels.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention discloses several variations of two- and a four-prong connectors **(5)** and **(6)** for mat panels **(35)** that provide a secure but flexible connection between adjacent heavy-duty mat panels **(35)**. The present invention is illustrated, but not limited, by the associated drawings.

One embodiment of the present invention comprises a two-prong connector **(5)** as shown in FIGS. 1 through 4. The two-prong connector **(5)** acts to flexibly secure adjacent mat panels **(35)** (as shown in FIG. 4) through interaction with a hole **(7)** located near the respective edges of the mat panels **(35)** that abut one another (see FIG. 10 for an illustration of a mat panel **(35)** with single and pairs of holes **(7)** and **(8)**). The term “abut” is used herein to describe the edges of two mat panels **(35)** that are secured in close proximity to one another by the connector **(5)**. “Abut” is not used to require or suggest that the edges of the mat panels **(35)** necessarily touch one another, but rather that



they are in close proximity to one another. The space between the edges of two mat panels **(35)** may vary according to the user's preferences and the circumstances surrounding the use.

A preferred embodiment of the two-prong connector **(5)**, as shown in  
5 FIGS. 1 through 3, generally comprises an upper member **(10)** connected at its first end **(11)** to a first joining member **(25)**. As shown in FIGS. 1 through 3, the first joining member **(25)** connects to the inner end **(17)** of the first lower member **(15)**. Also as shown in FIGS. 1 and 3, the second end **(12)** of the upper member **(10)** connects to a second joining member **(30)**, which connects  
10 to the inner end **(21)** of the second lower member **(20)**. Lower members **(15)** and **(20)** extend outward and away from the upper member **(10)** and the joining members **(25)** and **(30)**.

Two-prong connector **(5)** interacts with adjacent mat panels **(35)**, as depicted in FIGS. 4, 8, 9A, 9C, 9D, 11A through 12. As shown in FIGS. 4 and  
15 8, two-prong connector **(5)** is positioned when in use so that upper member **(10)** lies on top of the upper surface of two abutting mat panels **(35)** and spans the gap (if any) between the holes **(7)** in the mat panels **(35)**. Joining members **(25)** and **(30)** are sized to extend downward through the respective holes or apertures **(7)** located near the abutting edges of each mat panel **(35)**. As shown  
20 in FIG. 8, the lower members **(15)** and **(20)** extend outward between the bottom surface of the mat panels **(35)** and the surface being covered by the mat panels

**(35)**. Two-prong connector **(5)** may also be used with adjacent mat panels **(35)** that are angled in relation to one another such shown in FIG. 12.

As shown in FIGS. 4, 8, 9A, 9C, 9D, 11A through 12, the upper member **(10)** is of sufficient length to span the distance between the holes **(7)** in two abutting mat panels **(35)** to prevent there from being a large gap between the edges of the mat panels **(35)** while not being so short as to have a tight, inflexible joining of the mat panels **(35)**. As shown in FIG. 8, the lower members **(15)** and **(20)** are of sufficient length to securely hold the mat panels **(35)** without slipping out of the holes **(7)** when the mat panels **(35)** are moved.

Such secure yet flexible attachment is also achieved by the preferred orientation of the two-pronged connector **(5)**. Preferably, as best depicted in FIGS. 1 and 8, the two-prong connector **(5)** is substantially oriented as an inverted "U" with outwardly extending lower members **(15)** and **(20)** that are substantially parallel to the upper member **(10)**.

As shown in FIGS. 5 through 7, the four-prong connector **(6)** of the present invention is essentially comprised of two two-prong connectors **(5)** joined at their upper members **(10)** by at least one spanning connector **(45)** and, preferably, by two spanning connectors **(45)** and **(50)**. Any number of two-prong connectors **(5)** can be joined in series to form a larger, multi-prong connector and remain within the scope of this invention. The four-prong connector **(6)** encompasses all of the variations and details of the two-prong connector **(5)**. Spanning members **(45)** and **(50)** may be of any size and length

that accommodates the holes **(7)** and **(8)** in the mat panels **(35)**. The four-prong connector **(6)** may be used to connect two mat panels **(35)** (as shown in FIG. 9B), four mat panels **(35)** (as shown in FIG. 9C), or three mat panels **(35)** (as shown in FIG. 9D). Other connection variations are also possible,

5 including, but not limited to, connecting mat panels **(35)** at various angles (as shown in FIG. 12). In addition, four-prong connectors **(6)** can be used in conjunction with two-prong connectors **(5)** to form a continuous surface covered by mat panels **(35)**, as shown in FIGS. 8, 9C, 9D, 11A through 12.

A more detailed description of the elements of a preferred embodiment of  
10 the two-prong connector **(5)** of the present invention follows and is illustrated in FIGS. 1 through 4 and 8. As shown in FIGS. 1 and 8, the two-prong connector **(5)** is substantially an inverted U-shape with two outwardly extending lower members **(15)** and **(20)**. As generally described above, upper member **(10)** of two-prong connector **(5)** spans the distance between respective  
15 holes **(7)** in the mat panels **(35)**. Upper member **(10)** has a first end **(11)** and a second end **(12)**. The upper member **(10)** may be of any length and made from any material appropriate for the mat panels **(35)**, the surface, and the type connection with which the mat panels **(35)** and two-prong connector **(5)** are intended to be used. Similarly, the upper member **(10)** may have any shape,  
20 although it has been found that a rod-like, solid, circular cross-section offers the greatest ease of use, flexibility, and strength.

As shown in FIGS. 1, 4, and 8, the far ends of the two-prong connector (5) comprise a first lower member (15), having an outer end (16) and an inner end (17) and a second lower member (20) having an inner end (21) and an outer end (22). As shown in FIG. 1, the first and second lower members (15)

5 and (20) preferably are perpendicular to the joining members (25) and (30) and may also be angled upward, downward, or sideways in respect to the longitudinal and vertical planes of the upper member (10), but the first and second lower members (15) and (20) are generally positioned so that mat panels (35) cannot easily slide off of the two-prong connector (5) while in use.

10 In a preferred embodiment, the first and second lower members (15) and (20) are substantially straight. Alternatively, the first and second lower members (15) and (20) can be curved or have a wave to them depending upon the surface and the mat panels (35) with which they are being used.

Similar to the upper member (10), the first and second lower members (15) and (20) may be of any length and made from any material appropriate for the mat panels (35) used, the surface to be covered, and the type connection desired. Similarly, the first and second lower members (15) and (20) may have any shape, although it has been found that a rod-like, solid, circular cross-section offers the greatest ease of use, flexibility, and strength.

20 Also as shown in FIGS. 1 through 4 and 8, a first joining member (25) connects the first end (11) of the upper member (10) to the inner end (17) of the first lower member (15). Similarly, a second joining member (30) connects

the second end **(12)** of the upper member **(10)** to the inner end **(21)** of the second lower member **(20)**. As shown in FIG. 1, the first and second joining members **(25)** and **(30)**, in a preferred embodiment, are substantially parallel one another and are substantially perpendicular to the upper member **(10)**,  
5 such that the internal angle between the upper member **(10)**, and the joining members **(25)** and **(30)** is approximately ninety degrees.

In a preferred embodiment, the first and second joining members **(25)** and **(30)** are substantially straight, but the joining members **(25)** and **(30)** also can be curved or have a wave to them **(25)** and **(30)** depending upon the  
10 surface and the mat panels **(35)** with which the two-prong connector **(5)** is being used. Additionally, first and second joining members **(25)** and **(30)** may be of any length and made from any material appropriate for the mat panels **(35)** and the type connection with which the mat panels **(35)** and the connector **(5)** are used. The joining members **(25)** and **(30)** and the lower members **(15)**  
15 and **(20)** are sized to fit in the mat panel **(35)** apertures **(7)**. Joining members **(25)** and **(30)** may be solid, flexible, or have a hinged connection to the adjoining upper and lower members **(10)**, **(15)**, and **(20)**. Similarly, joining members **(25)** and **(30)** may have any shape, although it has been found that a solid, rod-like, circular cross-section offers the greatest ease of use, flexibility,  
20 and strength.

In other embodiments of the present invention, the internal angle between the upper member **(10)** and the first and second joining members **(25)**

and **(30)** may be greater than or less than ninety degrees with the horizontal plane of the upper member **(10)**, and the two internal angles may differ from one another in any single two-prong connector **(5)**. Additionally, joining members **(25)** and **(30)** may also angle outward from the horizontal plane  
5   formed by the upper member **(10)**.

        In a preferred embodiment, the present invention connects mat panels **(35)** having dimensions of about two to four feet in width, about two to eight feet in length, and a thickness of about two and one-half inches. In that preferred embodiment, the upper member **(10)** is approximately five inches in  
10   length and the first and second lower members **(15)** and **(20)** are each approximately two inches in length. The distance from the bottom edge of each of said lower members **(15)** and **(20)** to the top edge of the upper member **(10)** is approximately one and three quarters inches. Also, in this same  
embodiment of the present invention, the upper member **(10)**, the first and  
15   second lower members **(15)** and **(20)**, and the first and second joining members **(25)** and **(30)** are comprised of one-half inch diameter solid, round rods. The length of the two- or four-prong connector **(5)** or **(6)** from the outer end **(16)** of the first lower member **(15)** to the outer end **(22)** of the second lower member **(20)** is approximately eight inches. With respect to the four-prong connector  
20   **(6)**, the length of the first and second spanning members **(45, 50)** between the joining members **(25)**, **(30)**, **(31)**, and **(32)** in the preferred embodiment is approximately four inches.

In other embodiments of the present invention, however, the components of the two- or four-prong connector **(5)** or **(6)** can be sized according to the size of mat panels **(35)** used, the floor/ground being covered, and the size of the mat panel **(35)** holes **(7)**. Similarly, the components of the two- or four-prong connector **(5)** or **(6)** may be made of any material appropriate for the mat panels **(35)** and ground/flooring. As shown in FIGS. 4 and 8, the first lower member **(15)** and joining member **(25)** should be sized to fit in an opening **(7)** near the edge of a first mat panel **(35)** and the second lower member **(20)** and joining member **(30)** should be sized to fit in an opening **(7)** near the edge of a second mat panel **(35)** so that the edges of the mat panels **(35)** adjacent to the openings **(7)** abut, as shown in FIG. 4.

In a preferred embodiment of the present invention, the members **(10)**, **(15)**, **(20)**, **(25)**, and **(30)** of the two-prong connector **(5)** are comprised of one-half inch diameter cold rolled steel rods. In other embodiments of the present invention, the members **(10)**, **(15)**, **(20)**, **(25)**, and **(30)** may be comprised of any one material or a combination of materials, including, but not limited to, plywood, fiberglass, plastic, steel, metal sheets, and metal panels.

FIGS. 5 through 7 and 8 depict a four-prong connector **(6)** according to another embodiment of the present invention. The four-prong connector **(6)** allows for flexibly connecting four mat panel openings **(7)** and **(8)**. Among the mat panel **(35)** combinations that may be secured with the four-prong connector **(6)** are the following: (i) four mat panels **(35)** with one opening **(7)**

near a corner of each mat panel **(35)** (FIG. 9C); (ii) two mat panels **(35)** having pairs of openings **(8)** on one end of each mat panel **(35)** (FIG. 9B); (iii) one mat panel **(35)** having a pair of openings **(8)** on one end and two mat panels each having an opening **(7)** near one corner (FIG. 9D); etc.

5           As described above and detailed in FIGS. 5 through 9, the four-prong connector **(6)** of the present invention comprises two two-prong connectors **(5)**, with all of the above-described variations, that are joined at their respective upper members **(10)** by at least one spanning member **(45)**. The first spanning members **(45)** connects the first ends **(11)** of the two upper members **(10)** so  
10   that the first lower members **(15)** are substantially in the same plane as one another **(15)** and so that the upper members **(10)** are substantially in the same plane as one another **(10)**. Finally, a second spanning member **(50)** connects the second ends **(12)** of the upper members **(10)** so that the second lower members **(20)** are substantially in the same plane as each other **(20)** and in  
15   substantially the same plane as the first lower members **(15)**. The spanning members **(45)** and **(50)** are joined to the upper members **(10)** by any appropriate method including, but not limited to, welding, gluing, adhesive, taping, nailing, screwing, hinges, or any other method obvious to one skilled in the art.

20           In a preferred embodiment of the four-prong connector **(6)** of the present invention, the upper members **(10)** are substantially parallel to the first lower members **(15)** and to the second lower members **(20)**. In that embodiment, all



four of the joining members **(25)**, **(30)**, **(31)**, and **(32)** are substantially parallel to one another and are substantially perpendicular both to the upper members **(10)** and to the lower members **(15)** and **(20)**. In this same preferred embodiment, the internal angle between each of the upper members **(10)** and the corresponding joining members **(25)**, **(30)**, **(31)**, and **(32)** are approximately ninety degrees.

Also, in a preferred embodiment of the present invention for a four-prong connector **(6)**, each of the spanning members **(45)** and **(50)** is approximately five inches in length and is comprised of one-half inch cold rolled steel rods.

Other embodiments of the present invention may be comprised of any one material or a combination of materials, such as but not limited to: plywood, fiberglass, plastic, steel, metal sheets, hot rolled steel, cold rolled, and metal panels. As with the other members of connectors **(5)** or **(6)**, the spanning members **(45)** and **(50)** may have other dimensions.

One process of manufacturing a two-prong connector **(5)** comprises the steps of (i) cutting raw material to a desired length, and (ii) forming the cut piece into an upper member **(10)** having two opposing ends **(11)** and **(12)**, wherein each end **(11)** and **(12)** connects to or terminates in joining members **(25)** and **(30)**, and wherein each joining member **(25)** and **(30)** connects to or terminates in lower members **(15)** and **(20)**. Depending upon the materials used, a single piece of raw material, such as steel, may be bent to form the various members **(10)**, **(15)**, **(20)**, **(25)**, and **(30)**. Alternatively, the individual

members **(10)**, **(15)**, **(20)**, **(25)**, and **(30)** are joined by glue, welding, or some other joining means. This process may be supplemented to produce a four-prong connector **(6)** by forming a second two-prong connector **(5)** and as an additional step, joining the two two-prong connectors **(5)** by at least one

5 spanning member **(45)**. The two spanning members **(45)** and **(50)** are preferably secured to each of the ends **(11)** and **(12)** of each of the upper members **(10)** to form a rectangle or square between the spanning pieces **(45)** and **(50)** and the upper members **(10)**. The spanning members **(45)** and **(50)** are joined to the upper members **(10)** by any appropriate method including,

10 but not limited to, welding, gluing, adhesive, taping, nailing, screwing, hinges, or any other method obvious to one skilled in the art.

Numerous variations are encompassed by the process of manufacturing a connector **(5)** and **(6)** as just described. The material used in the given process can be any desired material or one selected from the group consisting

15 of, but not limited to, plywood, fiberglass, plastic, steel, metal sheets, one-half inch cold rolled steel, and metal panels. Any forming method can be employed, including but not limited to bending, molding, sculpting, press forming and casting. As necessary, different members **(10)**, **(15)**, **(20)**, **(25)**, **(30)**, **(45)**, and **(50)** are attached or secured to one another by glue, welding, hinging, or other

20 joining means.

FIGS. 9A through 9D illustrate the use of the two- and four-prong connectors **(5)** and **(6)** with various combinations of mat panels **(35)**. FIG. 10

shows a common mat panel **(35)** with holes **(7)** and **(8)** in a variety of locations including corner holes **(7)** and pairs of holes **(8)**. The holes **(7)** in the corners of FIG. 10's mat panel **(35)** accommodate two- or four-prong connectors **(5)** and **(6)** as shown in FIG 9C. The pairs of holes **(8)** accommodate either pairs of  
5 two-prong connectors **(5)** or four-prong connectors **(6)**.

The present invention also encompasses a system for securing mats **(35)** through use of two-prong connectors **(5)** and four-prong connectors **(6)** together. A mat panel **(35)** may be constructed to have a plurality of holes **(7)** and **(8)** when it is manufactured, or such holes may be added later by, among  
10 other methods, punching, drilling, or cutting the holes into the mat panel.

FIG. 11A illustrates the use of two mat panels **(35)** joined by two-prong connector **(5)**. The mat panels form a drive path surface upon which to drive a vehicle. FIG. 11B shows the use of two- and four-prong connectors **(5)** and **(6)** to connect two series of mat panels **(35)** to form a dual drive path. FIG. 11C  
15 illustrates a continuous surface covered by mat panels **(35)** connected by two- and four-prong connectors **(5)** and **(6)**. FIG. 13 shows the dual drive path of FIG. 11B abutting a perpendicular series of connected mat panels **(35)**.

The present invention also includes the process of joining a series of adjacent mat panels **(35)** by connecting those mat panels **(35)** with two- and  
20 four-prong connectors **(5)** and **(6)**. Preferably, two mat panels **(35)** are placed on a horizontal surface with their edges abutting. A two- or four-prong connector's **(5)** or **(6)** lower member(s) **(15)** and **(20)** and joining member(s)

(25), (30), (31), and (32) are inserted into the hole(s) (7) and (8) in that mat panel (35). The connector's (5) and (6) other lower member(s) (15) and (20) and joining members (25), (30), (31), and (32) are inserted into the hole(s) (7) and (8) in the adjacent mat panel (35). The adjacent mat panel (35) may have  
5 to be bent, lifted, tilted, angled, and/or manipulated in order to ease the connector (5) and (6) into the mat panel's (35) holes (7) and (8). This process can be repeated to connect an infinite number of mat panels (35) using any number of connectors (5) and (6).

It should be noted that, although the mat panels shown in FIGS. 1  
10 through 14 are all rectangular, mat panels of any size and shape can be used with the connectors (5) of the present invention. As an illustration and not a limitation, mat panels can be square, pentagons, hexagons, and octagons and still work with the present invention.